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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
10/620,013	07/15/2003	Phillip J. Hawkins	NSD 2002-003	8606	
7590	09/22/2006	EXAMINER			
GREENHUT, CHARLES N					
		ART UNIT	PAPER NUMBER	3652	

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/620,013	HAWKINS ET AL.
Examiner	Charles N. Greenhut	Art Unit 3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 5/18/065 & 7/5/06.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 1-14 is/are rejected.
7) Claim(s) _____ is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) Notice of Informal Patent Application
6) Other: _____.

I. Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/18/065 & 7/5/06 has been entered.

II. Claim Rejections - 35 USC § 112

The following is a quotation from the relevant paragraphs of 35 U.S.C. 112:

(2) The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1.1. Regarding claims 1-2, the phrase "i.e." renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

1.2. With respect to claim 7, it is unclear what is meant by "an acceptable degree of insertion" in line 4.

1.3. Claim 10 is indefinite because channel heads may be of different sizes.

1.4. Claim 11 is indefinite because it is unclear whether applicant is claiming the combination of two manipulators with a channel head, the subcombination of two manipulators, or the subcombination of a manipulator as recited in the preamble and

parent claim. For purposes of examination on the merits, Examiner assumes applicant is attempting to claim the subcombination of two of the manipulators of claim 1.

1.5. Claim 11 recites “the tube sheet” however this limitation was never positively recited previously, and only appeared as the object of a functional recitation, i.e., “for servicing...”. The “tube sheet” limitation, therefore, lacks antecedent basis.

III. Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim(s) 1-2, 4-6, 10 and 14 is/are rejected under 35 U.S.C. 102(b) as being anticipated by YANAGISAWA (US 5,351,626 A).

1.1. With respect to claim 1-2, and 10, YANAGISAWA discloses a base member (14a/14b/16a/16b/20), having a holder (Col. 3 Li. 8-10), the base member having a gripper (50a-d), a block member (22) directly rotably (Col. 3 66-68) connected to the base for linear and rotary movement having tow directions of linear travel ($\pm X$), and a foot member (10a/10b/12a/12b) directly connected to the block (22) for linear movement, having a gripper (42a-d), sized to permit more than one manipulator to be suspended on a semi-circular tube sheet.

1.2. With respect to claims 4-6, and 14 YANAGISAWA additionally discloses the gripper capable of exerting a force in a direction to draw the base or foot toward a

tube sheet (Fig. 14), a standoff pin (46a-d/38a-d), at least two grippers (42a-d)/(50a-d), pneumatic or hydraulic drives (Col. 7 Li. 50-52).

IV. Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim(s) 3 and 12 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over YANAGISAWA in view of STEWART (US 4,662,465 A).

1.1. With respect to claim 3, the figure 12 embodiment of YANAGISAWA teaches the desirability of allowing an additional degree of relative movement between the block and base members. YANAGISAWA, however, shows that degree of freedom is rotational. The figure 9 embodiment of STEWART teaches making such a modification by providing relative vertical linear travel between the block and base members (2)/(3). It would have been obvious to one of ordinary skill in the art to modify YANAGISAWA with the additional degree of freedom in order to provide quicker stepping or traverse obstacles.

2. Claim(s) 7 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over YANAGISAWA in view of SHUNICHI (US 4,070,561 A).

2.1. With respect to claim 7, YANAGISAWA fails to teach each gripper having a limit switch functioning to verify an acceptable degree of insertion. SHUNICHI teaches each gripper having a limit switch functioning to verify an acceptable degree of

insertion (Col. 10 Li. 4 et seq.). It would have been obvious to one of ordinary skill in the art to modify YANAGISAWA with the limit switches of SHUNICHI in order to provide feedback regarding the location of the grippers.

3. Claim(s) 8 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over YANAGISAWA in view of AMIET (US 5,559,843 A).

3.1. With respect to claim 8, YANAGISAWA does not teach insertion fingers. AMIET teaches insertion fingers (40) biased against the interior wall of a tube (13) by a piston (20) that forces ball bearings (39) up a tapered raceway (36a) between the piston (20) and fingers (40) forcing the fingers against the tube (13).

4. Claim(s) 9 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over YANAGISAWA in view of AMIET and further in view of SCHUKEI (US 4,643,472 A)

4.1. With respect to claim 9, YANAGISAWA in view of AMIET fails to teach a spring providing a bias toward a gripping position. SCHUKEI teaches a spring (32) providing a bias toward a gripping position. It would have been obvious to one of ordinary skill in the art to modify YANAGISAWA in view of AMIET with a spring bias in order to secure the robot in the event of power loss.

5. Claim(s) 11 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over YANAGISAWA.

5.1. As best understood by examiner, claim 11 recites merely the duplication of the manipulator of claim 1. It would have been obvious to one of ordinary skill in the art to duplicate an apparatus that performs a function in order to decrease the amount of time taken to perform that function.

6. Claim(s) 12-13 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over YANAGISAWA in view of WARD (US 3,913,452).

6.1. With respect to claim 12, YANAGISAWA fails to teach the manipulator is approximately 30 pounds or less. WARD teaches a manipulator that is approximately 30 pounds or less (Col. 9). It would have been obvious to one of ordinary skill in the art to modify YANAGISAWA with the light weight of WARD in order to minimize the gripping force required to suspend the manipulator.

6.2. With respect to claim 13, YANAGISAWA is silent regarding the load capacity of the apparatus. WARD teaches two or more fingers, each having a load capacity of fifty pounds (Col. 9 Li. 16) and therefore teaches supporting a payload as much as seventy pounds. It would have been obvious to one of ordinary skill in the art to modify YANAGISAWA with the load capacity of WARD in order to support equipment.

V. Response to Applicant's Arguments

Applicant's arguments entered 5/18/06 & 7/5/06 have been fully considered.

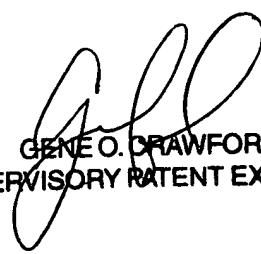
1. Applicant argues that claim 1, as amended, is not anticipated by GUGEL because the block member of GUGEL is not "directly, rotably" connected to the base member, as required by the limitations inserted by the amendment entered 5/18/06. This argument is persuasive. The rejection under 35 USC 102(b) over GUGEL is, therefore, withdrawn. A new grounds of rejection, however, over YANAGISAWA is presented above. Applicant's remaining arguments with respect to GUGEL are rendered moot in light of the new grounds for rejection.

2. Applicant argues that the teachings of SHUNICHI do not render claim 7 obvious because SHUNICHI fails to disclose a limit switch verifying an acceptable degree of insertion. This argument is not persuasive. A limit switch that detects insertion or non-insertion is capable of verifying an acceptable degree of insertion within the broadest reasonable interpretation of that term.

VI. Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles N. Greenhut whose telephone number is (571) 272-1517. The examiner can normally be reached on 7:30am - 4:00pm EST.
3. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen D. Lillis can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.
4. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CG


GENE O. CRAWFORD
SUPERVISORY PATENT EXAMINER